

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A control system for a legged mobile robot comprising a base body, a plurality of link mechanisms that are connected to the base body to move the base body and that come in contact with externals, and a plurality of joints provided between the base body and the distal portions of the link mechanisms to make the distal portions of the link mechanisms movable with respect to the base body, the legged mobile robot being able to be operated to a specific motion posture in which the robot is in contact with an external at ~~one or more distal portions of the link mechanisms~~ and a first predetermined portion or portions between the distal portion or portions of one or more specific link mechanisms among the plurality of link mechanisms and the base body, ~~wherein the distal portion of the link mechanism is a portion to be in contact with the external for moving the base body, and the first predetermined portion is a portion not to be in contact with the external for moving the base body~~ wherein at least one or more of the plurality of joints are provided between the first predetermined portion or portions and the distal portion or portions of the link mechanism, the control system, comprising:

an external force detecting means for detecting or estimating an external

force acting on the first predetermined portion in the specific motion posture;

a desired external force determining means for determining a desired external force, which is a desired value of the external force on the first predetermined portion in the specific motion posture; and

a joint controlling means for controlling the displacement of at least a joint existing between the first predetermined portion and the base body such that the detected or estimated external force approximates the desired external force.

Claim 2 (original): The control system for a mobile robot according to Claim 1, wherein the specific link mechanisms are leg bodies.

Claim 3 (previously presented): The control system for a mobile robot according to Claim 1, wherein the specific link mechanisms are leg bodies extended from buttocks connected to the base body through the intermediary of joints, and the first predetermined portion is the buttocks.

Claim 4 (original): The control system for a mobile robot according to Claim 1, comprising an actual posture detecting means for detecting the actual posture of a second predetermined portion, such as the base body, of the mobile robot, and a desired motion determining means for determining a desired posture of the second predetermined portion, wherein the desired external force determining means determines the desired external force on the basis of at least the difference between the actual posture and the desired posture of the second predetermined portion.

Claim 5 (original): The control system for a mobile robot according to Claim 1, comprising an actual posture detecting means for detecting an actual posture of a second predetermined portion, such as the base body, of the mobile robot, and a desired motion determining means for determining the desired posture of the second predetermined portion, wherein the joint controlling means comprises a means for determining the manipulated variable of an external force on the basis of the difference between the actual posture and the desired posture of the second predetermined portion, and the displacement of the joint is controlled such that the detected or estimated external force approximates the resultant force of the desired external force and the manipulated variable of the external force.

Claim 6 (new): A legged mobile robot comprising:

- a base body;
- a plurality of link mechanisms connected to the base body, each of the plurality of link mechanisms having:
 - a distal portion;
 - a predetermined portion located between the base body and the distal portion; and
 - at least one joint located between the predetermined portion and the distal portion; and
- a control system including:
 - an external force detecting means for detecting or estimating an external force acting on the predetermined portion when the mobile robot is in a

specific posture;

a desired external force determining means for determining a desired external force, which is a desired value of the external force on the predetermined portion in the specific posture; and

a joint controlling means for controlling the displacement of the at least joint such that the detected or estimated external force approximates the desired external force,

wherein when the mobile robot is in a motion position the distal portion of at least one of the plurality of link mechanisms contacts an external surface,

wherein when the mobile robot is in a specific posture position the predetermined portion of at least one of the plurality of link mechanisms contacts the external surface, and

wherein the control system operates the robot from the motion position to the specific posture position and from the specific posture position to the motion position.

Claim 7 (new): The legged mobile robot of claim 6, wherein the predetermined portion is selected from the group consisting of a knee, an elbow and a buttocks.